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Abſtract of His MAJESTY's

ROYAL LETTERS PATENT.

GEORGE R.

GEORGE the *Second*, by the Grace of God, of *Great Britain*, *France*, and *Ireland* King, *Defender of the Faith*, &c. To all and to whom theſe Preſents ſhall come, Greeting.

WHEREAS W. BRADFORD, R. DARBY, and J. HULLS, have, with much Labour and Study, invented a Portable INSTRUMENT for detecting Frauds by Counterfeit GOLD, which gives the Weight, and ſhews the Alloy, as well in COIN as in all other UTENSILS made with that METAL, with the Quantity of Adulteration, in as little a Time as GOLD is weigh'd: AND WHEREAS they have alſo invented a New SLIDING-RULE, which performs the ſame at one Operation as requires two or three on the Sliding-Rules heretofore made: And as it hath been made appear, that the ſaid Inſtruments will be very uſeful to Our loving Subjects; We have moſt graciouſly granted unto the ſaid W. BRADFORD, R. DARBY, and J. HULLS, Our Letters Patent, under the Great Seal of Great Britain, for the ſole Uſe and Benefit of their ſaid Inventions, within England, Wales, and Town of Berwick upon Tweed, and alſo in Our Plantations Abroad. And We do, by theſe Preſents, for Us, our Heirs, and Succeſſors, require and ſtrictly command all and every Perſon and Perſons Bodies Politick and Corporate, and all other Our Subjects whatſoever, of what State, Quality or Degree Name or Condition ſoever they be, within that Part of Our Kingdom of Great Britain call'd England, Our Dominion of Wales, and Town of Berwick upon Tweed, and alſo within our Colonies and Plantations Abroad, that neither they, nor any of them, at any Time, during the Term of Fourteen Years hereby granted, either directly or indirectly, do Make or put in Practice the ſaid Inventions, or any Part of the ſame, nor in anywiſe Counterfeit, imitate or Reſemble the ſame, or make any Addition or Subſtraction to pretend themſelves the Inventors, upon ſuch Pains and Penalties as can or may be inflicted on ſuch Offenders for their Contempt of this Our Royal Command.— In Witneſs whereof We have cauſed theſe Our Letters to be made Patent.

Witneſs Our Self at Weſtminſter *in the Twenty ſeventh Year of our Reign.*

THE Gentleman's *and* Trader's GUIDE.

Containing, The

DESCRIPTION *and* USE

OF A *New-Invented*

INSTRUMENT,

For Preventing FRAUDS by

Counterfeit *GOLD*,

WHICH

Gives the WEIGHT, and ſhews the ALLOY of that METAL, as well in Coin as in RINGS, JEWELS, and all Kind of UTENSILS made thereof;

WITH

The *Quantity* of ADULTERATION (if any)

The INSTRUMENT

Is neatly made in BRASS, and very eaſily portable in the Pocket

---

⁎ Any Perſon, by ſending to the AUTHORS, (Poſt paid) may have an Inſtrument made to Weigh and prove any larger Coin or Utenſils of GOLD and SILVER than This Inſtrument is deſign'd for,

---

By W. BRADFORD, Teacher of the Mathematicks,
R. DARBY, and J. HULLS;
All of Campden, in the County of Glouceſter.

Sold Wholeſale and Retail by the Patentees at their Warehouſe in Campden, and in moſt Towns in England.

STRATFORD, Printed by J. KEATING, 1756

THE

Gentleman's *and* Trader's GUIDE.

THO' we do not claim the firſt Diſcovery of the Power whereby this INSTRUMENT operates to the Purpoſes mention'd in the Title Page, yet we think we may properly enough call it an Invention, as the notable Improvements which have been made in late Ages of former Diſcoveries in other Caſes, particularly Mr. GUNTER's Improvements in Stereometry are juſtly eſteem'd ſuch: For, after Lord NEPER Sir HENRY BRIGS, and others, had brought to Perfection that Series of artificial Numbers call'd LOGARITHMS, they remain'd uſeleſs to the common Artificer for many Years, 'till Mr. GUNTER render'd them uſeful to the Carpenter, Maſon, Builder, Gauger, and all Perſons who bought or

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traded in ſuch Things wherein the knowledge of their Magnitude or Meaſure was neceſſary.

The Diſcovery of the Uſe of the HYDROSTATICKS is generally attributed to that famous Mathematician ARCHIMEDES; and, tho' improv'd by Mr. BOYLE and others, yet hath remain'd in a great Meaſure uſeleſs to the Trader in the Matter we are now treating of: But, by this Inſtrument, they are, in this Caſe, not only render'd uſeful, but alſo made plain and eaſy, even to the Illiterate; ſo that any Perſon, wholly unacquainted with Hydroſtatical Principles, may, by it, readily know the Goodneſs or Alloy of GOLD, and the Quantity of its Adulteration; and what, particularly recommends it beyond all other Hydroſtatical Machines heretofore made for this Purpoſe, is, That it is not only eaſily portable in the Pocket, but alſo ſaves the Trouble of working Arithmetical Proportions by Numbers in every Operation or Trial; for it ſhews the weight, and alſo the intrinſick Value, by Inſpection only.

There are many other Excellencies which we could enumerate of this Inſtrument, but thoſe already mention'd we apprehend are ſufficient.

If any Perſons (unacquainted with Hydroſtatical Principles) ſhould doubt of the Certainty of the Performance of this Inſtrument, let them take a Piece of GOLD, of any Weight, and a piece of any other Metal of the like Weight, and prove them both ſeperately by this Inſtrument, according to the Rules laid down, and the Difference will ſo evidently appear, that it will need no further Demonſtration.

Before we deſcribe this Inſtrument, and ſhew the Method of uſing it, we ſhall firſt obſerve That thoſe who artfully Counterfeit GOLD generally make uſe of Silver, that being the fitteſt Metal wherewith to do it; for a Piece of Coin made with Silver, and near the Weight and make of the Coin intended to be counterfeited, if made ſomewhat thicker in the Middle, and ſtampt with a good Relievo, and well gilt or plated, cannot be diſcover'd by weighing, or any common Experiment, without defacing it: * But let a Piece of Coin be never ſo artfully counterfeited, it will not ſtand the teſt of this Inſtrument.

It is well known Fluids reſiſt in Proportion to the Magnitude of the Body immers'd in them; and if two different Bodies are ſeperately weigh'd ſtatically and Hydroſtatically, their relative Gravity is thereby known: Conſequently, if an unknown Quantity of Silver be caſed, or gilt over with an unknown Quantity of Gold, and be weigh'd Statically and Hydroſtatically, the Weight of each Metal may ſeperately be found to the minuteſt Part of a Grain; according to the Weight given.

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* See the Gentleman's Magazine for June, 1752, Page 285.

N. B. Had Capt. DAMPIER known this Method of determining the Genuine Value of Metals, he had perhaps ventur'd to traffick with the Indians at the Baſhee Iſland, for ſome of their Yellow Rings; which he ſays in his Voyages he had no great Encouragement to do, not being able to determine whether they were Gold or not, See Clare's *Book* of Fluids, Page 143.

We ſhall now proceed, in as conciſe a Manner as poſſible to deſcribe this Inſtrument, *and then give ſome* Rules *for the* Uſe *of it.*

FIRST, You have a ſmall thin Plate of Braſs, which you are to lay flat upon a level Table or Board, with the ſmall Center Pins fix'd in it undermoſt, ſo as they may bear upon the Edge of ſuch Table or Board, and play as the Ballance ſhall require, with a ſmall Chain and Pincers wherein to fix any Piece of Money intended to be weigh'd and prov'd, hanging over the Edge of the Table; and, note, There are two Pair of theſe Center Pins, one Pair of which (to wit, thoſe mark'd with the Letter A) to be made Uſe of for weighing and proving all Pieces of GOLD not exceeding the Value of 36s. and thoſe mark'd B, for all Pieces from that Sum to 72 s. or 3 l. 12 s.

On each Side of the Plate are two Lines, and a whole Diviſion of each Line is equal to the Weight or Value of One Shilling in GOLD, and every Subdiviſion to that of Threepence, (after the Rate of 3 l. 18 s. 1d. Halfpenny the Ounce, according to the Standard of the Coinage at the Mint, which makes the GUINEA to weigh 129 Grains; and, note, The Lines mark'd A and B, gives the weight only, and are properly ſtatical; and thoſe mark'd W, are deſign'd to ſhew the Alloy or Adulteration, and are hydroſtatical, correſponding with the ſtatical Lines.

Having

Having given a Deſcription of the INSTRUMENT, *we ſhall proceed to give ſome* General RULES *for the uſe of it.*

I. PIECES of GOLD not exceeding 36 s. are weigh'd Statically, by the Line A, and prov'd Hydroſtatically, by the Line W, on the upper Side of the Inſtrument.

II. Pieces from 36 s. to 72 s. or 3 l. 12 s. are weigh'd and prov'd in like Manner, by the Lines B and W, on the lower Side thereof.

And note, For weighing and proving the firſt Kind of theſe Pieces, the Center Pins mark'd A, and, for the large Sort thoſe mark'd B, are to be made Uſe of: For (let it be a general Rule) when the Line A is uſed, the Center Pins mark'd A is made Uſe of; and when the Line B is uſed, the Pins mark'd B are alſo to be uſed:

Note alſo, The End of the Sliding-Piece on the Plate, towards the Chain, is to be obſerv'd in the Uſe of this Inſtrument.

☞ If You ſhould have Occaſion to weigh and prove a very ſmall Piece, as, a 2 s. 3 d. or 4 s. 6 d. put the ſaid Piece in the Pincers, with ſome other Piece that You have weigh'd and prov'd before, and the Weight and Alloy of ſuch ſmall Piece will be eaſily known.

Having gone thus far, we ſhall now proceed to give ſome Example *of weighing and proving of* COIN.

EXAMPLE *the* Firſt.

Of a GUINEA.

FIRST place the Sliding Piece to 21 on the Line A on the uppermoſt Side of the Plate; then lay the Inſtrument on a level Table or Board, having the Chain, with the Piece hanging in the Pincers, over the Edge, and let the Plate move freely on the Center Pins mark'd with the Letter A; and if there be an Equipoiſe, then it is of proper Weight; if not, move the Slide, as Occaſion requires, backward or forward, 'till it acts in Equilibro, and the Diviſion, or Part of a Diviſion, where it reſts is the true Weight. — For Inſtance, — Suppoſe it reſts at 20½ the Weight of it is 20s. 6d.— Then, to prove the Alloy of this Piece, place the Inſtrument in the former poſition, having firſt brought the Slide back to 20½ in the Hydroſtatick Line, mark'd W, (for let it be a general Rule, that whatever Diviſion the Slide is at in weighing on the ſtatical Line, it muſt be brought back to the ſame on the hydroſtatical Line adjoining, and alſo correſponding;) then take a Glaſs, or rather a pint of Water, & let the Piece in the pincers, and the long Link whereon it is ſuſpend-ed,

---

N. B. A whole Diviſion on each Line is equal to the Weight or Value of One Shilling in GOLD a half Diviſion to 6d. and a Quarter Diviſion to 3d. &c.

ed, dip into the Water till the Mark on the long Link is equal with the Surface; and if the Inſtrument acts in Equilibrio, as in the laſt Operation, or dips lower in the Water, it is Standard Gold: But if you are compell'd to bring the Slide more backward than 20 ½ in the hydroſtatick Line, before it will equiponderate or dip, You may conclude the Guinea is adulterated.—And then, to find out the Quantity of Adulteration, if alloy'd with Silver, count 2 s. for every penny it wants in the Hydroſtatical Weight, which may be eaſily eſtimated, though the Diviſions on the Inſtrument go no lower than Three-pence; and then, if the Number of Pence the Piece is deficient in Weight hydroſtatically, when doubled, exceed the Number of Shillings it weighs ſtatically, it may be juſtly concluded that it is adulterated with ſome baſer Metal.

EXAMPLE *the Second.*

Of a Three Pound Twelve Shilling PIECE.

PUT this Piece likewiſe into the Pincers, and place the Inſtrument on the Center pins mark'd B, and let the plate as before, move freely, having firſt brought the Slide to 72 in the Line B, on the lower Side of the plate, and if it then moves in Equilibrio, the Piece is of proper weight; but if not, move the Slide till there is an Equipoiſe, which will be the true weight.——And to prove the ſame Piece hydroſtatically, bring the Slide back to the ſame Number or Diviſion on the hydroſtatick Line W, as it reſted at in the ſtatick Line, and put the Inſtrument into its proper Method or Triall in the Water, and You will find thereby the Adulteration of this Piece, as in the foregoing Example of a GUINEA: ——Which two Examples may ſerve for directions for weighing and trying of other Pieces of different Value.

Tho' 'tis needleſs, in common practice to have any Recourſe to Numbers or Arithmetical Calculations, Yet thoſe that are curious may turn to the Table in page 12, whereby the Quantity of Adulteration is known to the hundredth part of a Grain, according to the Weight given.

A more ſpeedy method to find whether any Piece of Gold be adulterated *or not, without moving the* Slide *more than once which may be ſufficiently near the Truth in common Practice*

WHen You have weigh'd a Piece ſtatically & found the Weight, bring the Slide to the ſame Number on the hydroſtatick Line, and apply the Fluid as before, ſo that the Surface of the Water may be exactly at the Mark on the long link, whereon the pincers are ſuſpended; and, if the Inſtrument doth not then equiponderate, gently lower Your Hand that holds the Fluid, till the Inſtrument begins to move; & by obſerving if any part of the Pincers be above the Surface of the Water, You may very eaſily diſcover whether it be adulterated, and gueſs at the Quantity of Adulteration.

As for Inſtance;—If a counterfeit Half-Guinea, or other ſmall Piece, be try'd, ſome part of the Pincers will appear above Water, before the Inſtrument will act in Equilibrio.—If a counterfeit Guinea be try'd, great part of the pincers will appear above Water, before the Inſtrument will move.— Again,--If a counterfeit Thirty ſix Shilling Piece be try'd, the Inſtrument will not equiponderate till not only the pincers, but alſo ſome ſmall part of the Coin are above the Surface—Alſo, If a counterfeit Three pound Twelve Shilling Piece is try'd, there will be more of the Metal appear above the Surface of the Water than there will in a counterfeit Thirty ſix Shilling Piece.

In trying GOLD by this laſt method, obſerve, when the Piece and Inſtrument counterpoiſe, the Quantity of Adulteration is always in Proportion to as much of the Pincers, or the metal held by them, as appears above the Surface of the Water.

It is eaſily conceived that the Pincers cannot appear ſo far above the Surface of the Water in trying a ſmall counterfeit Piece, as one that is large, and made of the ſame baſe Metal; by Reaſon the larger the counterfeit Piece is, the more it is deficient in the hydroſtatick Weight, according to the foregoing Demonſtrations.

N. B. If a Piece, of any Weight, be Standard GOLD, the Inſtrument will move before any part of the Pincers is above the Surface of the Water.

CAUTIONS.

WHEN you have proved any Piece, and taken it out of the Inſtrument, beware you do not wet the Slide or Ballance Beam with your Fingers, nor the Table or Board whereon the Inſtrument is laid, for that will make an Error in the Trial in the next Piece

If the Sliding Piece ſhould, by Accident, ſlip off the Beam, take Care, in putting it on again, that the End mark'd with a ſmall Notch faces the Chain End.

A TABLE Shewing (by the Deficiency of the *hydroſtatick* Weight) the Quantity of *Adulteration* in a Piece of *Counterfeit* GOLD that is *alloy'd* or *mix'd* with Silver.

Penc.	l.	s.	d.		P.wts.	gr.
1	0	01	11¾,	64	0	11 45
2	0	03	11¾,	28	0	23,91
3	0	05	11½,	92	1	11 36
4	0	07	11½,	64	1	23.82
5	0	09	11½,	38	2	11.27
6	0	11	11¼,	84	2	23 73
7	0	13	11¼,	48	3	11,18
8	0	15	11¼,	12	3	23,64
9	0	17	11 ,	76	4	11,09
10	0	19	11 ,	4	4	23,55
11	1	01	10¾,	68	5	11,
12	1	03	10¾,	68	5	23,46
13	1	05	10¾,	32	6	10,91
14	1	07	10½,	96	6	23 37
15	1	09	10½,	6	7	10,82
16	1	11	10½,	24	7	23,28
17	1	13	10¼,	88	8	10,73
18	1	15	10¼,	52	8	23,19
19	1	17	10¼	16	9	10,64
20	1	19	10 ,	8	9	23, 1
21	2	01	9¾,	72	10	10,55
22	2	03	11 ,	28	10	23, 1
23	2	05	10¾,	92	11	10,46
24	2	07	9¾,	36	11	22,92
25	2	09	9¾,		12	10,37
26	2	11	9½,	64	12	22,83
27	2	13	9½,	28	13	10.28
28	2	15	9¼,	92	13	22,74
29	2	17	9¼,	56	14	10,19
30	2	19	9¼,	2	14	22 65
31	3	01	9 ,	84	15	10. 1
32	3	03	9 ,	48	15	22.56
33	3	05	9 ,	12	16	10, 1
34	3	07	8¾,	76	16	22,47
35	3	09	8¾,	4	17	9.92
36	3	11	8¾,	4	17	22,38

The USE of the TABLE.

IF I weigh a Piece of GOLD (ſuppoſe a Thirty ſix Shilling Piece) and find it the true Weight, ſtatically; but, when I try the Hydroſtatick Weight I find the Inſtrument will not Equiponderate till the Slide is brought back 15 Pence, (which is one Diviſion and 1-4th Part of another,) then I look back in the firſt Column of the Table for 15d. the Number of Pence it wanted Hydroſtatically, and in the ſecond Column I find 1l. 9s. 10d. ½, 6 Parts of 100th Part of a Farthing; and ſo much Gold is wanting in that Piece. And to know how much Silver is in the room of it, look in the third Column, and there you will find 7 Pennyweights, 10 Grains, and 82 Parts of a 100th Part of a Grain.—[And ſo of any other Piece.]

A TABLE

Shewing the Weight and Value of ſuch Pieces of GOLD as are current in this Kingdom; and, if a counterfeit; likewiſe ſhewing, by the Number of Pence they are deficient of the Hydroſtatick Weight, of what Metal the Counterfeit is made, whether of Silver, Copper, Braſs, or Tin.

Names of the Pieces.	Weight in Grains.	val. in ſhilli. s. d.	Silver	Copper	Braſs.	Tin.
½ Guinea	64½	10 6	5,38	7,48	9, 8	9,76
a Guinea	129	21 0	11,78	14,98	18,16	19,54
¼ Moidore	41¼	6 9	3.44	4, 8	6,66	6,94
½ Moidore	82½	13 6	6,90	9,62	13,34	13,88
a Moidore	165	27 0	13, 8	19,26	26 70	27,78
⅛ 36s Piece	27	4 6	2,30	3, 2	3.88	4,44
¼ 36s Piece	55	9 0	4, 6	6,42	7,78	8, 9
18s Piece	110½	18 0	9, 2	12,84	15,56	17, 8
36s Piece	221	36 0	18, 4	25,68	31,12	35,62
3l. 12s P.	442	72 0	36, 8	51,38	62.24	71,24

The USE of the TABLE.

SUppoſe you would prove a Piece call'd a Moidore, look in the firſt Column of this Table for the Word Moidore, and oppoſite to it, in the ſecond Column, you find its true Weight to be 165 Grains, and, in the third, Column, its Value to be 27s. And if by weighing a counterfeit Piece of this Kind in the Inſtrument, you find it is deficient in the hydroſtatick Weight 19 Pence, look further in the ſeveral oppoſite Columns till you find the neareſt Number, to 19, and, under the Word Copper, in the fifth Column, you will find 19,26 being the neareſt Number to that ſought for, whereby you may conclude the Piece is counterfeited with Copper; which may ſerve for a Rule in proving other Pieces.

This Inſtrument is not only uſeful in proving the Difference of the Ponderouſneſs of Solid Bodies, but alſo in ſhewing the ſpecific Gravity of Fluids and Liquids.

And for thoſe that deal in Spirituous Liquors, to know what Degree of Strength they are, and when full Proof.

Likewiſe to the Soap-Boiler, it ſhewing the Strength of the Lees to a Grain, and when they are fit for the Uſe deſign'd.

☞ Each Operation may be perform'd in leſs than a Minute.

For take a Piece of Common Glaſs that is ſolid and put it in the Pincers and Rectifie the weight of it ſo that it may weigh 30 Shillings when immerſt ſo deep in common water that the Surface of the water toucheth the notch in the Long link, then the ſame piece of Glaſs will weigh in Strong Lees 27 Shillnigs, in made Brine 28, in proof Spirits 31 Shillings and four pence, in like manner may the ſpecific Gravity of any ſort of Liquid be known on the Inſtrument,

⁂ Alſo to be had of the INVENTORS, an INSTRUMENT that will weigh a Pound weight of GOLD, very Uſefull for all Merchants Gold-ſmith's, &c. that Trade in RINGS, WEDGES of Gold, and Gold-DUST; This Inſtrument will ſhew the true Value of Gold, Duſt, with the Quantity of Adulteration, if any, as well as all other Utenſils, made of that Metal. There is only this difference to be obſerved in uſing this Inſtrument, Inſtead of Shillings and parts as on the ſmall one, this is divided into Ounces and penny weights.

Cautions to be obſerved in uſing this Inſtrument,

When you weigh Statically, let the Scales and Metal be dry, but when prov'd Hydroſtatically, let the Scales and Metal be well wetted, eſpecialy if it is in different Pieces; If Gold Duſt, it is Neceſſary to Stir it well in Water, before prov'd.

N. B: Merchants Goldſmiths, &c, by applying to the Inventors may have an Inſtrument made, to weigh, and prove any Quantity of Gold.

Adver-

ADVERTISEMENT.

To be had of the AUTHORS.

Their new and Compleat Improved

SLIDING-RULE.

WHEREBY

The Contents of all **Solids** and **Superficials** are more eaſily and readily caſt up than by the common **Sliding Rule**; for this Inſtrument will perform the ſame at one Operation as will require two or three on the Sliding-Rule heretofore made.

As For INSTANCE.

LET a Piece of Timber or Block of Stone be never ſo unequally ſided, and let the Dimentions be given in any Denomination, or in different Denominations, this Inſtrument will give the Content at one Sett or Operation, without being at the Trouble of finding mean Proportionals, as you are compell'd to do in other Sliding Rules; and the making two or three Setts gives a great deal of Trouble, and is liable to many Miſtakes, by Reaſon we are generally compell'd to carry a mixt Number in the Head, in order to proceed in the next Operation; but here we are freed from that Trouble and Difficulty; And, what farther recommends it to the World, is the Commodiouſneſs thereof, and manner of Uſe; for in other Inſtruments, you are obliged to ſtate the Queſtion right to find the Anſwer; but in this, if you ſtate the Queſtion improperly, it will come right notwithſtanding, which renders it advantageous and eaſy to thoſe that are unſkill'd in Arithmetick or common Slides.

An Inſtance of Brickwork--Let the Length and height of a Wall be given, & the number of Bricks thick, this Inſtrument will give the Content of any Wall in Rods, and reduce it to the Standard Thickneſs, at one Operation; alſo if the Length and Height of any Wall be given, with the Length and Thickneſs of one Brick, the Inſtrument will ſhew, at one Operation, the Number of Bricks it will take to build ſuch Wall.

It is alſo of great Uſe in framing of Timber for Building, ſhewing the Lengths of all Hyps, Valleys, Gutter-Pieces, or King-Pieces, &c. at any Pitch aſſign'd, not only in Square Buildings, but alſo in Bevel Roofs which Lengths cannot be found by any Arithmetical Proportions, or by any other Sliding Rule, yet are ſhewn on this by Inſpection: And, therefore, not only of great Uſe to the Maſter Builder, but alſo to the common Carpenter, who is unſkill'd in the Rules of ARCHITECT.

Here are alſo many Advantages in Meaſuring SUPERFICIALS as well as SOLIDS by this Inſtrument: As for Inſtance:—If the Content of a whole Stock of Boards be required, by ſetting the Inſtrument for the Length and Breadth of one Board only, you have the Content of any Number of thoſe Boards whatſoever; the Slide being ſet for one Board, the Inſtrument is in Effect a Table of the Contents of any Number of

Boards, without moving any part of the Inſtrument: If there are parts of a Foot in one Board, all the parts as well as the Feet are Sum'd together in the Content of the whole Stock at the ſame Operation.

In like Manner may the GLAZIER Sum up the Content of any Number of Panes of Glaſs at one Sett;—or a BLACKSMITH the Contents of ſeveral Caſements.

For PAVING:—Let the Length and Breadth of a Floor, and the Length and Breadth of one Brick, &c. be given, it ſhews, at one Operation, how many Bricks, &c. will pave ſuch Floor.

This Inſtrument not only ſurpaſſes the common Slides in thoſe particulars, but alſo in many more of great Conſequence; but I ſhall only Inſtance in theſe following.

There are but few uſeful Queſtions in Buſineſs relating to the Meaſuring of Solids (except Cylinders) that can be anſwer'd at one Sett of the Sliding Rules now in Uſe; for we ſeldom meet with a piece of Timber or ſtone to be meaſur'd which hath equal ſides, therefore cannot be anſwer'd at one Sett on the common Sliding Rules, unleſs there be a Line fitted by the Inſtrument-Maker for one particular purpoſe; then the ſaid Rule is render'd uſeleſs in all other Caſes, and will not caſt up any Solid that is in any other Form; or, if the Dimenſions are given, or the Content requir'd in any other Denomination than what the Rule was made for, it will not anſwer the Queſtion; but this Inſtrument remedies all thoſe Inconveniencies in the Sliding

Rules now in uſe; for if the Dimenſions be given or required in what Denomination ſoever, or different Denominations, it anſwers the queſtion with the ſame ſpeed and Exactneſs as if given or required in any particular denomination.

There are a great many more Solids that the Sliding Rule will not caſt up at one Operation, which this Inſtrument will with eaſe and ſpeed; as Triangular Priſms; Pyramids, Elliptical Cones, Globes,&c. alſo thoſe whoſe Baſes or Elliptical, or Paralellograms, Rhombus, Rhomboides, Trapeziums, Poligons, and many other.

In fine, This Inſtrument multiplies any three Numbers together ſucceſſively, and divides that product by any other Number, at one Set of the Slide, which comprehends all the moſt uſeful Queſtions relating to the Meaſuring of Superficials and Solids. It alſo performs the Compound or Double Rule of Three, containing Five Numbers given to find a Sixth; which no other Sliding-Rule will perform at one Operation.

N. B. The Uſe of this Inſtrument is ſo much eaſier learn'd and underſtood than the Sliding Rules now in Uſe, that any Perſon unſkill'd in Arithmetick or Sliding-Rules, may (with the Directions given) be capable of giving the Content of any Timber, Stone, Brickwork, Gauging, Paving, Tiling, Plaiſtering, Painting, &c. in a more eaſy Method than hath been heretofore uſed.

⁂ The Authors hereof have a Neat Sort of Rules for the Curious with Braſs Slides: And Likewiſe can make them of Ivory with Silver Furniture, for thoſe that Require it, by ſending to the Authors, (Poſt Paid.)

By His Majeſty's Royal Letters Patent.

Juſt Publiſhed,

The Malt-Maker's *INSTRUCTOR*:

SHEWING how any Perſon that can only multiply Three Figures, may know the Duty to a Farthing, (according to Act of Parliament,) of any Quantity of MALT, either in Ciſtern, Couch, or Floor, without any Regard being had to the Number of Buſhels, Perform'd by Multiplication only, in a ſpeedy Method entirely new.

ALSO,

How to prepare a STICK, ſo that any Perſon, who is wholly unacquainted with Numbers, or Gauging Inſtruments, may, in the Tenth of a Minute, know the Duty, to the Parts of a Penny, of any Quantity of MALT contain'd in his Ciſtern or Frame, &c. without either Pen, Paper or Rule, or in the leaſt charging the Memory, whereby he may know if he is Over-charged by the Officer in the Duty.

To which are Added,

Inſtructions for Brewers *and* Alehouſe-keepers, who Brew their own ALE, *&c.*

Whereby they may know if they are at any Time Over-charged in the Duty; ſhewing how any One, that doth not in the leaſt know any Thing of Numbers or Inſtruments, may eaſily prepare a STICK for any Kind of Veſſel, that will inſtantly ſhew, by Inſpection, what the Duty comes, to, in Shillings and Pence, of any Quantity of Ale or Small-Beer contain'd therein, without any Regard being had to the Number of Barrels, Gallons, or any other Meaſure, be the Veſſels never ſo irregular.

To be had of the AUTHORS, J. HULLS, and Comp. at Campden in Glouceſterſhire.

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